

**LESSON TITLE: OPERATE VEHICLE AT NIGHT****A. TRAINING OBJECTIVE**

- TASK:** Know procedures to operate the vehicle at night.
- CONDITIONS:** Given instruction in a classroom.
- STANDARD:** Correctly answer verbal questions when called upon.

**B. INTERMEDIATE TRAINING.** None.**C. ADMINISTRATIVE INSTRUCTIONS**

1. Training time: Recommended instructional time is 0.5 hours.
2. Training location: Scheduled classroom.
3. Training type: Conference.
4. Students: Scheduled personnel.
5. Principal and assistant instructors required: One primary instructor for each class of 20 students.
6. Training aids and equipment: Overhead projector, transparencies, and screen.
7. References: FM 21-305.

**D. SEQUENCE OF ACTIVITY****1. INTRODUCTION.**

- a. **Interest Device.** You start out at a disadvantage just because it is night. Drivers' night vision simply is not as good as their vision during the day. Also, night is the usual time for a person to sleep. You can more easily become tired or fatigued at night.
- b. **Tie-in.** Reduced visibility, glare from oncoming headlights, and unseen objects in the road all combine to make night driving hazardous.

c. **Lesson Objective.**

**ACTION:** After this lesson the student will know safety procedures to operate the vehicle at night.

**CONDITIONS:** Given instruction in a classroom.

**STANDARD:** Correctly answer verbal questions when called upon.

d. **Procedures.**

(1) *Explanation.*

(2) *Summary.*

2. **EXPLANATION.**

*Transparency 4-89*

a. **Night Driving Risks.**

(1) Driving at night is more dangerous.

- More than one-half of all traffic accidents occur at night.
- Most fatal accidents occur between sunset and sunrise, even though there is less traffic and fewer miles traveled at night.

(2) Why do so many accidents occur with less exposure?

- Low illumination makes things harder to see which means hazards must be nearer before they can be seen and the closer distance leaves less time to respond.
- Drivers caught by surprise are less able to avoid a collision.

**TRANSITION:** All three elements of highway traffic system are involved in night driving; driver, roadway, and vehicle.

*Transparency 4-90*

b. **Night Driving Factors.**

(1) *Driver factors:*

(a) *Vision.* The driver has limited vision at night because--

- Eyes need time to adjust to the change between light and darkness.
- Drivers cannot see as sharply at night (visual acuity).
- Drivers cannot see to the sides as well at night (peripheral vision).
- Different parts of the eyes used to see at night than during the day.

(b) *Glare*. Glare causes temporary blindness, normally from oncoming headlights but sometimes from other lights.

- Due to the physical makeup of the eyes, it takes time to recover from glare blindness (illustrate by pointing out common experience of being temporarily blinded by flashbulbs).
- The rate of recovery from glare varies with individuals from one-half second to several seconds with intense glare (distance traveled in two seconds at 55 MPH is 160 feet). The rate of recovery also increases with age.

(c) *Fatigue*. Driver fatigue is a serious factor at night. Fatigue reduces the ability to see clearly. The driver also becomes less alert and is slower to see hazards (which does not make him react as promptly). Results of fatigue:

- Less time to react.
- Reflexes are slower.
- Much greater chance of collision.

(d) *Driver inexperience*. Newness to driving, coupled with the reduced vision, glare, and fatigue account for the fact new drivers have higher nighttime accident rates than more experienced drivers. What this points to is the need to learn how to adjust speed, space, and driving techniques for night driving conditions.

(2) ***Roadway factors:***

(a) *Low illumination*. Street lights often provide only poor to fair illumination. On most roads, the only illumination is from the driver's headlights. Headlights are useful for a relatively short and narrow path straight ahead of the vehicle. Headlights do not bend around corners.

(b) *Variation in illumination*. The driver must constantly adjust his eyes to different types and degrees of lighting. Flashing lights

distract as much as they illuminate. Traffic signs are hard to see against the background of other lights especially in towns and cities.

(c) *Familiarity with roads.* The driver must be particularly alert on roads that he has never driven during the day. On familiar roads, drivers tend to be overconfident. This is dangerous because--

- The view of the roadway is not the same at night.
- Situations on some stretches will change such as stalled car, fallen tree, and so on.

(d) *Other road users.* The driver must adjust his driving to hazards such as pedestrians, joggers, bicyclists, and animals (transfixed by headlights).

(e) *Drinking drivers.* The chances of encountering drunken drivers increases after sundown. Be especially alert when driving near roadside taverns and similar attractions for pedestrians and drinking drivers coming out of parking lots. Continue to be alert for signs of drinking drivers in early hours of morning after taverns close.

#### ***Transparency 4-91***

##### **(3) *Vehicle factors:***

(a) *Headlights.* Sight distance is limited to headlights' range. Therefore, the driver must drive at a speed that lets him stop within his sight distance. Dirty, burned out, or maladjusted headlights are unsafe and cause vision problems for the driver and other road users.

(b) *Auxiliary lights.* Other drivers can see vehicles better at night when marker lights, tail lights, and brake lights (also reflectors and clearance lights on trucks) are clean and working properly.

(c) *Turn signals.* The ability to communicate with other drivers depends on turn signals. Nonfunctional or dirty turn signal lights greatly increase the risk of an accident.

(d) *Windshield and wipers.* A clean windshield and properly working wipers are necessary for safe driving.

(e) *Mirrors.* Mirrors help the driver see what is going on around him. Keep them clean and properly adjusted.

**Transparency 4-92****c. Night Driving Procedures.****(1) Preparation:****(a) Getting yourself ready.**

- If you wear glasses, be sure they are clean.
- Remove sunglasses.
- Be well rested.

**(b) Planning your route.**

- Know the location of rest stops (to aid in fighting fatigue).
- Plan for hazards such as unlighted areas, exit ramps, rural roads, taverns, construction areas, and other changes in the highway environment.
- Get information about unfamiliar routes.

**(c) Getting the vehicle ready.**

- Ensure windshield, mirrors, lights, and reflectors are clean. If needed, clean again during stops, particularly if the weather is bad.
- Ensure all lights are operational.

**Transparency 4-93****(2) Driving:****(a) Avoid blinding others.**

- Dim high beams when oncoming vehicles are within 500 feet.
- Do not use high beams to retaliate against other drivers.

**(b) Avoid glare.**

- Set interior panel lights at the lowest setting to reduce glare.
- Look to the right when oncoming vehicles are using high beams.
- Switch the inside day/night rearview mirror to the night setting.
- Do not smoke while driving. In addition to creating a smoke screen, smoking reduces night vision. It also causes a film to build up on the glass inside the vehicle.

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(c) Maximize visibility.

- Use low beams when desired visual range is about 250 feet.
- Use high beams when there are no oncoming vehicles and desired visual range is 350 to 500 feet.

(d) Adjust basic driving techniques.

- Be extra cautious because of reduced vision.
- Signal earlier than during daylight to give other drivers more time to react.
- Increase following distance by at least one second to allow more time to react to hazards.
- Keep speed within sight distance. Do not overdrive headlights.

### 3. SUMMARY.

#### *Transparency 4-95*

a. **Recap Main Points.** Call on students to answer questions presented on Transparency 4-95.

b. **Allow for Questions.**

c. **Clarify Questions.**

d. **Give Closing Statement.** Night driving means reduced visibility. Do not overdrive your vision. Drive at a speed that will let you stop if an object moves into the area of your headlights. You should be well rested and have a clean windshield when you drive at night.

- Twilight or dusk is a dangerous time to drive. When the sun is just below the horizon; glare, shadows, and reduced light will play tricks with your vision. Day becomes night in 15 to 30 minutes. Your vehicle can cover 25 miles during this period.
- Changes in light that occur at sunrise and sunset affect the vision of all drivers. Care and caution is needed.

**E. SAFETY RESTRICTIONS.** None.

**F. ADDITIONAL COMMENTS AND INFORMATION.** None.